held several inches of snow. The hail-stones, however, found their way between the branches and made short work of the eggs.

As an instance of ground building birds building in well sheltered spots, in the regions of storms, I will mention several nests of Thurber Junco. July 21 two nests of the Junco were discovered on small stone ledges, well underneath projecting blocks of granite on the terraced slope of Pyramid Peak, granite, utterly bare of soil, extending underfoot in all directions. What would seem to be a more congenial spot for the species was a low thicket of dwarfed pines, encircling a tiny alpine garden on the shore of a lake not far away. However, the nests and eggs under the rock roof were not harmed at all by the violent dashes of hail.

Earlier in the season, at Bijou on the southern shore of Lake Tahoe, I was surprised to find two nests of the Junco built inside of tin cans lying in a meadow. Eggs in one nest and young in the other were not injured by several inches of snow which fell at that time. Later I was informed that this method of nest building with Juncos was not uncommon in the vicinity of Bijou.

AN INTRODUCTION TO THE STUDY OF THE EGGS OF THE NORTH AMERICAN LIMICOLAE

By DR. R. W. SHUFELDT

WITH SIX PHOTOS

IT WOULD seem that up to the present time no contribution has appeared which has been devoted to descriptions of the eggs of the limicoline birds of this country, and certainly none that has been illustrated by reliable figures of the eggs of the principal genera composing this most interesting assemblage. There are, to be sure, various books extant, in which brief descriptions of these eggs are given, indeed, one or two such books with colored illustrations of them, but they do not belong to the class of literature to which reference is made. Major Bendire's magnificent volumes did not reach the shore and water birds, a fact that every ornithologist in this country has, at one time or another, mentioned with the most sincere regret. It may be said, too, in passing, now that Mr. A. C. Bent is doing such admirable work in the direction of completing that elegant classic it is to be hoped that he may be so fortunate as to command the means to bring out, as illustrations for it, plates of colored figures of eggs of all the water birds of North America, in a way that Bendire would have done, had he lived to accomplish it.

The collection of eggs of North American birds in the United States National Museum is truly of a magnificent character; it forms a part of the material under the care of the Division of Birds of that institution, where it is cased in the best class of modern cases, and arranged in such a manner as to be readily available for the oölogical student. There is also a most beautiful display of birds' eggs and nests in the halls of the ornithological exhibit in another part of the main building. Any responsible ornithologist of standing may study these eggs, but they have not been so used in the present contribution. This would have required far more time than I have at my command at present; moreover, the eggs of our limicoline birds are there in large series, consisting of hundreds of specimens; to have touched them at all would simply have meant for me to

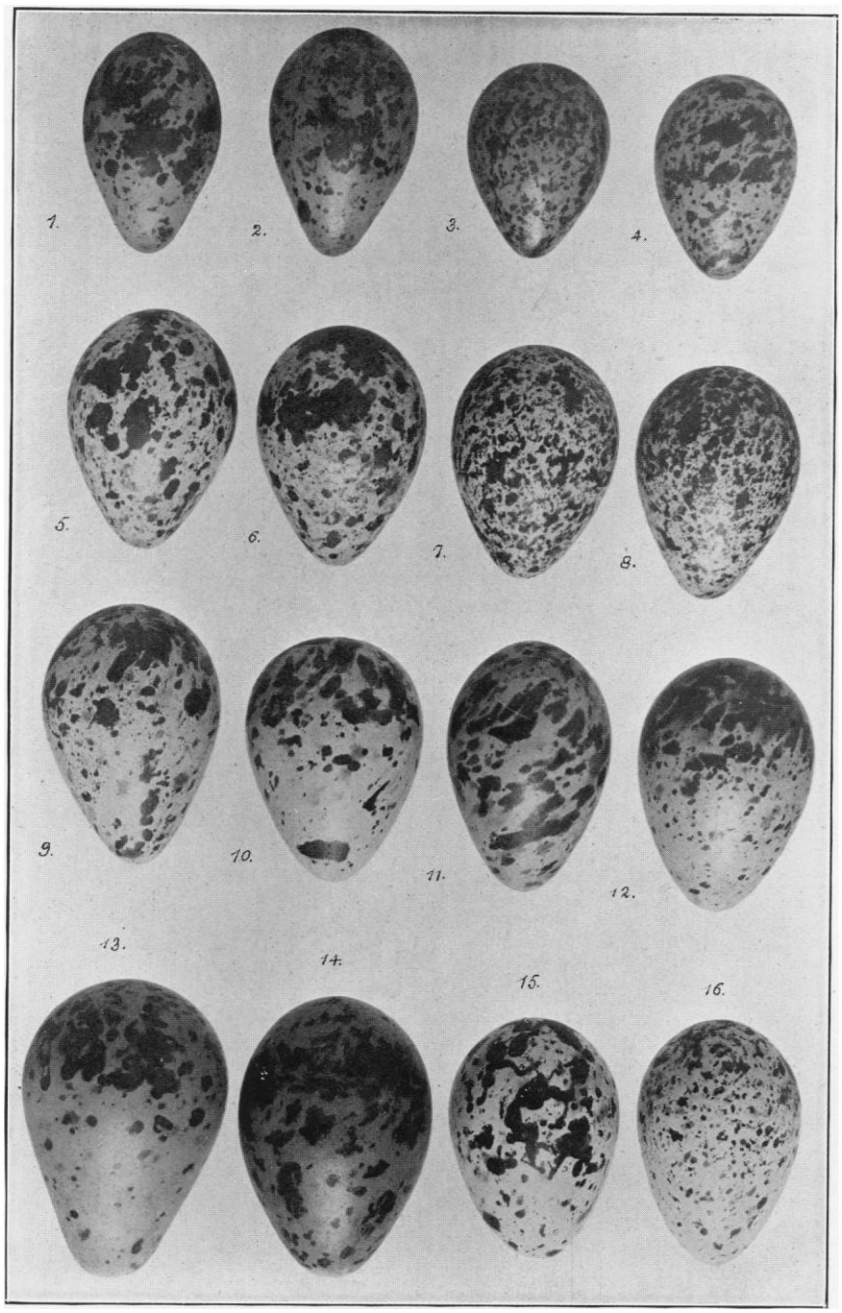

Fig. 41. Nos. 1-4, Red Phalarope (*Phalaropus fulicarius*): nos. 1 and 2 from one set, nos. 3 and 4 from another, each of four eggs. Nos. 5-8, Wilson Phalarope (*Steganopus tricolor*): nos. 5 and 6 from one set, nos. 7 and 8 from another, each of four eggs. Nos. 9-12, Dunlin (*Pelidna a. alpina*); nos. 9 and 10 from one set, nos. 11 and 12 from other sets, each of four eggs. Nos. 13, 14, European Snipe (*Gallinago gallinago*), from two sets of four. Nos. 15, 16 Spotted Sandpiper (*Actitis macularius*), from two sets of four. Slightly less than natural size.

apply myself to the task as a whole, and produce a mass of measurements (averages), to have brought to light a great quantity of important scientific history of them, and, finally, to have given illustrations in color of the eggs of all our *Limicolæ*. The work would have occupied me for the better part of a year, and, as I have just remarked, my time would not at present admit of such an undertaking.

It has occurred to me, however, that an introduction to the study of the eggs of the birds of this group would be of no little value. The results of such an examination are presented here, and all that I have been able to set forth is due to my study of the elegant collection of birds' eggs composing the cabinets of Mr. Edward J. Court of Washington, D. C., to whom I am very glad to acknowledge my indebtedness.

Mr. Court's collection is at his own home. He has allowed me to borrow from it, in preparing this paper, all the eggs of shore birds that I could possibly use, and I may say here that he has trays of them, filled almost to overflowing, the result of scientific collecting extending over many years.

In this collection I find the eggs of Phalaropes; of the Avocet and Black-necked Stilt; Woodcock, European and Wilson Snipe; the Dunlin and Black-tailed Godwit; Willets, the Ruff, Plovers, Sandpipers, the Long-billed Curlew (eighteen specimens), the Whimbrel, the Lapwing, three species of Oyster-catcher, and others. Examples of all these were taken to my home, where I made photographs of them (each specimen natural size); they are reproduced as the six figures illustrating this article.

With respect to the position of the *Limicolæ* in the system, based upon the morphology of the known members of the group, it has been found that they form a Suborder, which in my Classification of Birds, I place between the Supersuborder CHARADRIIFORMES and the Supersuborder STEREORNITHIFORMES [1].

As we know, the *Limicolæ*, or "Shore Birds", are arranged between the *Ralli* and the *Gallinæ* in the classification adopted for the A. O. U. *Check-List* (1910), a relationship that is not supported by the anatomy of the birds in question, whatever other factor may have been employed toward the adoption of such a scheme. And again, the *Limicolæ*, in the A. O. U. *Check-List*, are divided into seven families, namely the *Phalaropodidæ*, containing the phalaropes; the *Recurvirostridæ*, or the avocets and stilts; the *Scolopacidæ* (snipes, sandpipers, etc.); the *Charadriidæ* (plovers); the *Aphrizidæ* (surf-birds and turnstones); the *Hæmatopodidæ* (oyster-catchers), and the *Jacanidæ* containing the jacanas.

This assemblage, in the United States avifauna, is represented by about seventy-seven species and subspecies combined, the great bulk of them belonging to the *Scolopacidæ* and the *Charadriidæ*, or the great snipe-plover group.

So numerous is this array that it would be quite out of the question to describe and compare the eggs of all of them in this article. In many instances it is impossible to distinguish the eggs of a subspecies from a species, as most oölogists know. With this fact in mind—taken in connection with the rarity of the eggs of some of the species, rendering photographs of the latter the more desirable for publication—I selected the eggs which are here figured for my purpose.

To represent the phalaropes, choice was made of the eggs of the Red and Wilson Phalaropes, and the illustrations of them are here given on fig. 41, nos. 1-8. It will at once be observed that the eggs of the latter bird are considerably larger

1. Shufeldt, R. W., An Arrangement of the Families and the Higher Groups of Birds. Amer. Nat. vol. XXXVIII, nos. 455-456, Nov.-Dec., 1904.

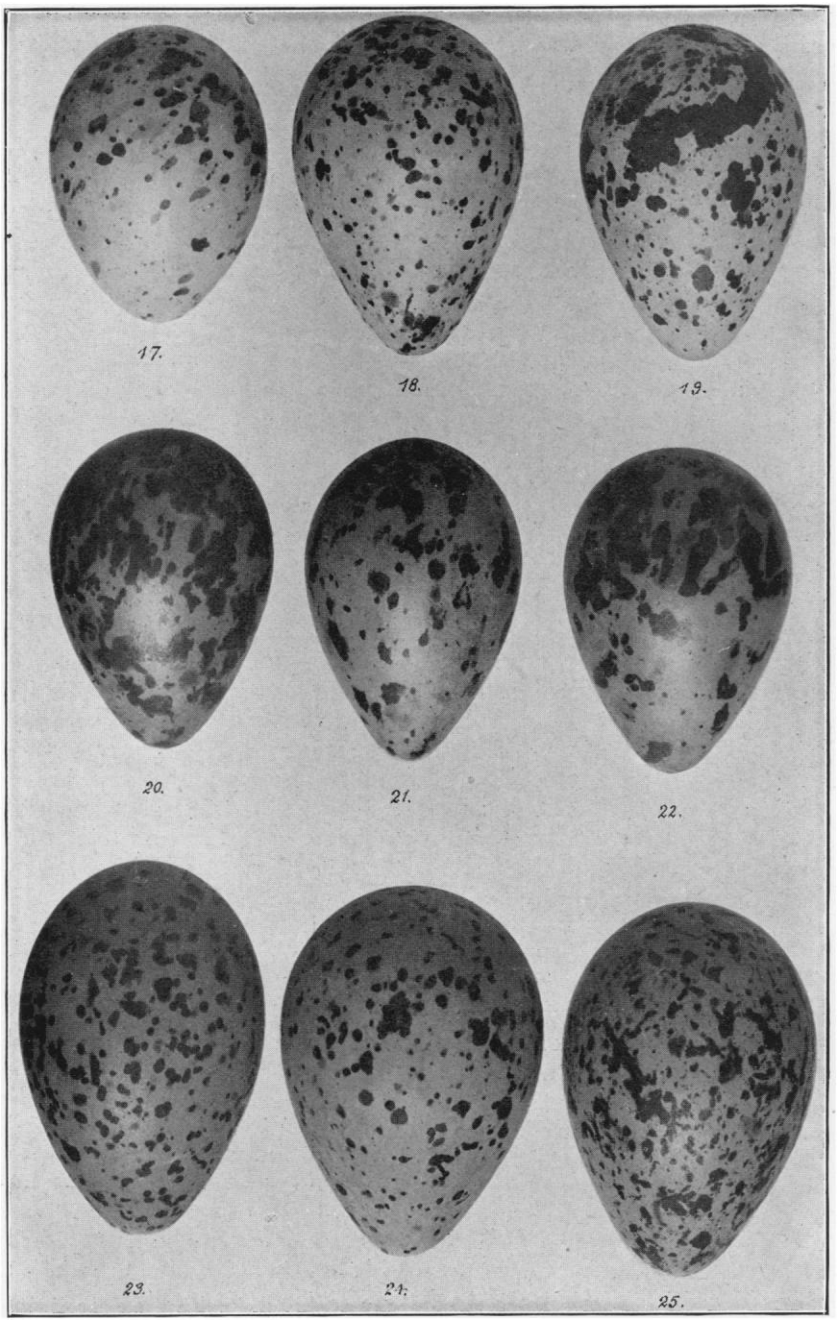

Fig. 42. No. 17, American Woodcock (*Philohela minor*). Nos. 18 and 19, Redshank (*Totanus calidris*); from two different sets. Nos. 20-22, Ruff (*Machetes pugnax*); set of four. Nos. 23-25, Avocet (*Recurvirostra americana*); from three different sets. Slightly less than natural size.

than those laid by the Red Phalarope, while the color and markings are quite different in the two species. Coues remarks in the last edition of his *"Key"* that the eggs of *P. fulicarius* cannot be distinguished from those of *Lobipes lobatus,* a statement I cannot vouch for, as I have no eggs of the latter bird before me at the present writing.

As Ridgway, Coues, Reed, and many other authors have published the *sizes* of all the eggs described below, in most cases based on large series of specimens (averages), I have not deemed it necessary to enter very extensively into this part of my subject. Moreover, I have tested some of the data here referred to, and I find it, as a rule, quite correct. Again, the *shapes* of the eggs here considered are likewise easily to be appreciated from an examination of the figures, as these latter are absolutely accurate. It is quite another matter when we come to *color,* and there are but few ornithological magazines that can afford to publish such oölogical luxuries as correctly colored plates of the eggs of birds.

All the eggs shown on fig. 41, including the phalaropes, are of nearly natural size. As a rule, the ground color of the eggs of the Red Phalarope (*P. fulicarius*) is darker than that of the Wilson (*Steganopus tricolor*), being of deep greenish-olive; while the markings upon the eggs, even in a single set, vary very considerably. They are, however, of a dark bistre brown, being blotched over the egg irregularly, though principally at the butt and middle. There are also, in the same color, scraggly markings and innumerable fine little specks, the whole effect being a dark egg, thickly marked nearly all over with a rich, deep brown.

Eggs of *Steganopus tricolor* also vary somewhat in size and shape, and still more in their color pattern (nos. 5-8). The ground color of those before me is of a light, buffy clay shade, with the markings a deep chocolate brown, or brownish-black. The distribution of these markings is well shown in nos. 5-8. In the case of the egg shown in no. 6, the *entire butt* is covered over with one large even blotch of this deep brown color. Only a part of this shows in the figure; but when the egg is viewed end on, this big blotch covers more than half the area in view. In some sets, the speckling is mostly fine, with only a few scattered larger dots, as shown in nos. 7 and 8. The eggs of this phalarope average in size about 1.30 x 0.90.

The *Recurvirostridæ* are, in our avifauna, represented by two birds, the Avocet (*Recurvirostra americana*), and the Black-necked Stilt (*Himantopus mexicanus*), eggs of both of which I have been enabled to present figures of here. Avocets' eggs are shown on fig. 42, nos. 23-25, and those of the Stilt on fig. 45, nos. 46 and 47. As we would naturally expect to find them, the Avocet's eggs are larger than those of the Stilt, though sometimes their markings are alike in pattern, as will be appreciated by comparing nos. 25 and 46. Eggs of the American Avocet vary somewhat in color, form, and size; but, judging from the sixteen eggs of this species before me at this writing, these variations are in no particular as great as we find it to be the case in some other limicoline species.

This statement does not agree with the description given by Coues (*"Key,"* vol. II, p. 791), who says for this bird: "Eggs 3-4, as variable in size, shape, and markings as the parents; 1.80-2.10 x 1.25-1.45," followed by a description of the colors, markings, etc., that does not agree with the specimens in Mr. Court's collection. Ridgway, who says not a word about the varying of Avocets' eggs, makes a truer statement, thus: "1.93 x 1.35, pale olive, olive-buff, or drab-buff (rarely creamy buff), thickly spotted (sometimes sparsely lined also) with dark brown or black" (*Manual,* p. 146).

Pale olive-buff is the ground color of the Avocets' eggs at hand, and the dark

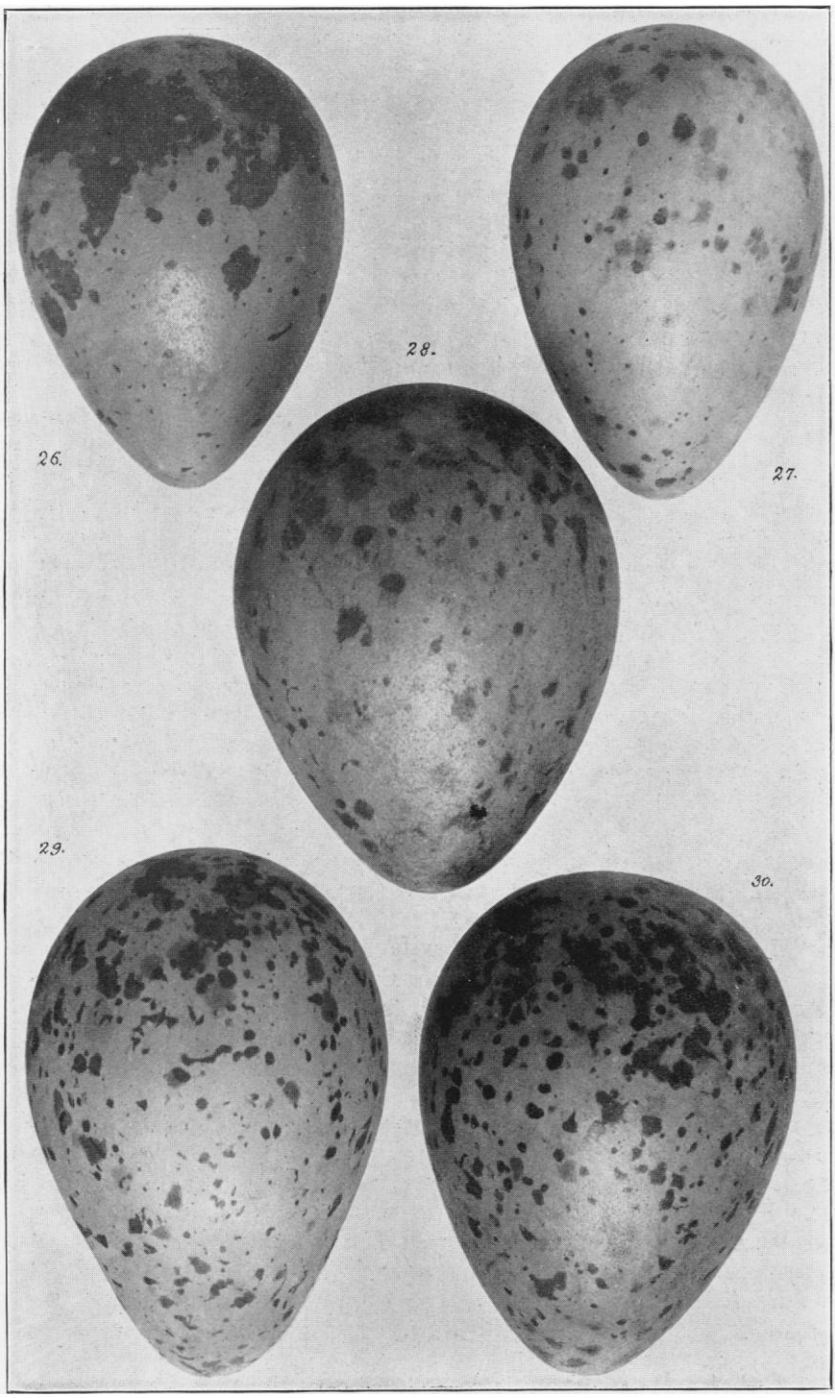

Fig. 43. Nos. 26, 27, Whimbrel (*Numenius phæopus*); from two different sets of four eggs each. Nos. 28-30, Long-billed Curlew (*Numenius americanus*); from three sets of four eggs each. Slightly less than natural size.

brown, or nearly black, blotchy dots (often confluent) and *smeared ones* that mark them more or less all over, is the rule with them. These markings vary but little, being simply thicker in some specimens than in others.

Similar in general color, in patterns of markings, and in form, the eggs of the Black-necked Stilt (*Himantopus mexicanus*) closely resemble those of the Avocet, a fact Mr. Ridgway long ago pointed out in his *"Manual,"* page 147, when he stated, in regard to this species of Stilt: *"Eggs* 3-4, 1.79 x 1.23, similar in coloration to those of *Recurvirostra americana."* See nos. 46 and 47 of fig. 45 of the present paper. Coues likewise stated in the last edition of his *"Key"* (pp. 792, 793) that the eggs of the Stilt "resemble those of the Avocet, but average decidedly smaller," while his description of them is different from those of other describers: "Eggs 3-4, pyriform, 1.60-1.85 x 1.15-1.25; greenish-drab or pale brownish-olive to dark ochraceous, boldly marked all over with spots and splashes of blackish brown."

Passing to the *Scolopacidæ,* there is first to be noticed the pretty eggs that the Woodcock (*Philohela minor*) lays (no. 17, fig. 42). This egg is generally more rotund than the eggs of limicoline birds ordinarily are, the Woodcock itself being a stocky species. The eggs in Court's collection are of a pale clay color, very faintly tinged with lilac. They are spotted and blotched, chiefly toward the butt, with irregular, rusty-brown spots, and a still fewer number of pale lilac or faint purplish-gray. These become very much smaller in size and fewer in number toward the apex or pointed end. Coues gives these spots as "numberless," which I have never found to be the case. As to their size he also states: "averaging 1.50 x 1.18; a short broad one 1.40 x 1.20; a long, narrow one 1.55 x 1.15" (*"Key,"* 5th ed. p. 804).

Swann[2] describes the eggs of the European Woodcock (*Scolopax rusticola*) thus: "Eggs: 4; pale buff, blotched with pale and dark reddish-brown, and with underlying lilac blotches; shape somewhat globular; 1.70 by 1:30."

Both the European Snipe (*Gallinago gallinago*) and the Wilson Snipe (*Gallinago delicata*) lay very different eggs from those of *Philohela minor,* or, indeed, any of the woodcocks. Eggs of the first-mentioned species are shown on fig. 41 of this article in nos. 13 and 14, while those of the Wilson Snipe are given on fig. 44, nos. 31-33. It is likely that sometimes the eggs of these two species closely resemble each other, and this is not far from being the case with respect to two of the eggs before me, while others are very different. For examination I have, at the present time, two sets of each species of these snipes, all having four eggs to the set, which is the usual complement. On the figures, the eggs are all reproduced nearly natural size, and their forms are absolutely accurate.

Sometimes the eggs of the Wilson Snipe are of a *very dark* olive-brown, the blotches and markings being of a deep bistre, and occurring chiefly near the larger end (nos. 32 and 33). Instead of blotches—or at least associated with them—we find scrawly scratches as shown in no. 33. The Wilson Snipe also lays a palish olive colored egg, with smaller brown spots and blotches, and a few pale lilac spots interspersed among them (no. 31). These chiefly encircle the butt. The European Snipe also lays both light colored and dark colored eggs, somewhat similarly spotted and marked.

Much to my surprise Swann describes the eggs of *Gallinago gallinago* as being, "pale yellowish, with an olive tinge, blotched with reddish-brown and blackish, and with underlying lilac marks; 1.60 by 1.15" (*loc. cit.* p. 178). Ridgway

2. Swann, H. Kirke, A Concise Hand-book of British Birds, London, 1896, p. 177.

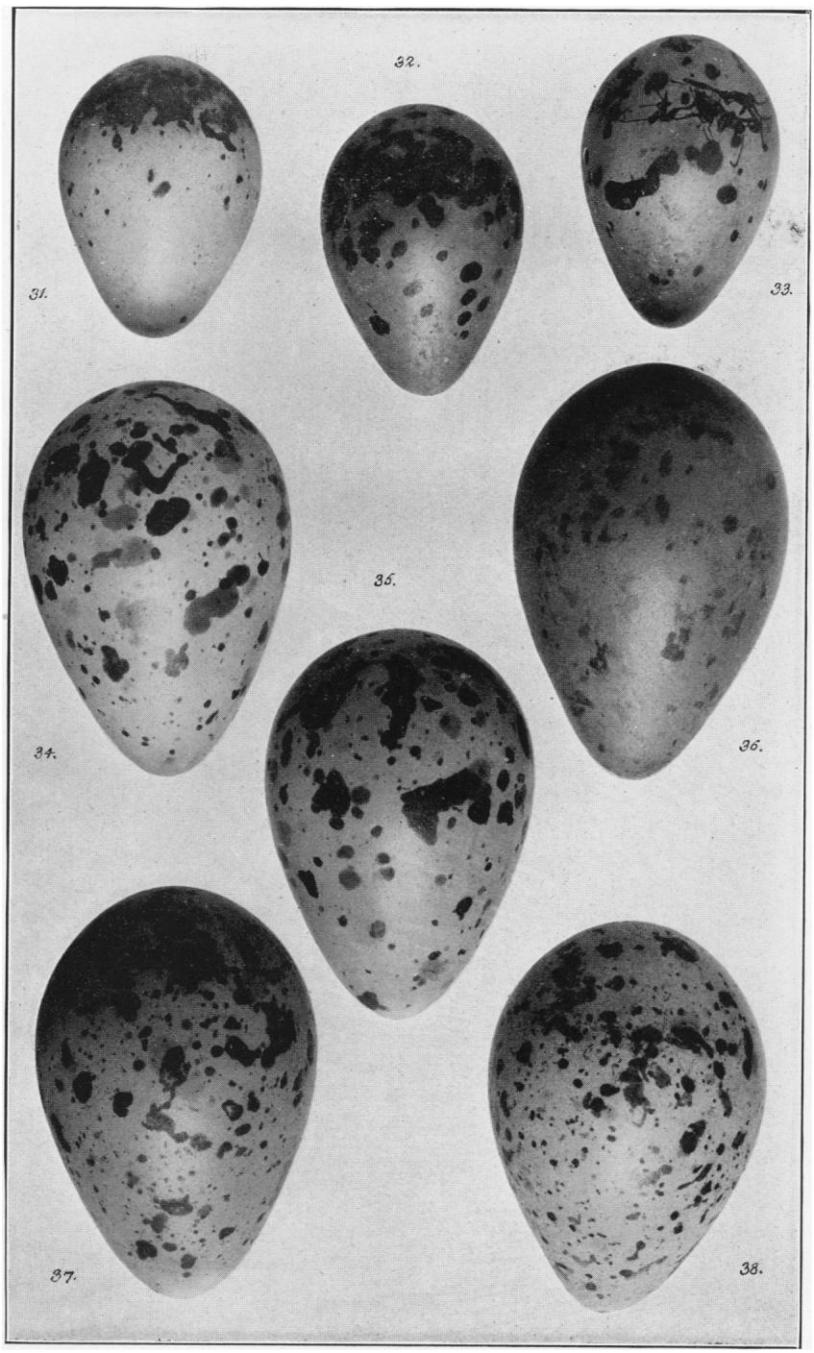

Fig. 44. Nos. 31-33, Wilson Snipe (*Gallinago delicata*); no. 31 from one set, nos. 32 and 33 from another, each of four eggs. Nos. 34 and 35, Western Willet (*Catoptrophorus s. inornatus*); from two different sets of four eggs each. No. 36, Black-tailed Godwit (*Limosa limosa*); from a set of four. Nos. 37 and 38, Willet (*Catoptrophorus semipalmatus*); from two different sets, each of four eggs. Slightly less than natural size.

in his *"Manual"* does not commit himself either on the form or the color of the eggs of the European Snipe.

I select for description among the eggs of the stilts and the sandpipers those of the Dunlin (*Pelidna a. alpina*). Mr. Court has four sets of four each of the beautiful eggs of this species in his collection, and from these I select, for illustration, the characteristic ones given on fig. 41, nos. 9-12.

Passing over what Doctor Coues had to say in his *"Key"* about Dunlins and their eggs, we find that Ridgway, without giving any measurements, says of *"Tringa alpina"* that they (the eggs) are of a "pale olive-buff, spotted, somewhat spirally (sometimes speckled), with different shades of vandyke-brown and purplish-gray" (*loc. cit.* p. 159). Those before me are all of an extreme pale olive as to ground color, the various markings being a deep brown. These latter run all the way from large blotches to the finest of specks. They may be chiefly at the larger end, or they may not. Sometimes the larger blotches may all be at the butt, with a single one at the apex (no. 10). As Ridgway truly says, the blotches are very often *spirally* inclined (no. 11), doubtless produced as the egg passes down the oviduct. In size these eggs average 1.40 x 1.00.

Of the four godwits (*Limosa*) found in the avifauna of this country, I select the eggs of the Black-tailed (*L. limosa*) to represent their oölogy. Doctor Coues, in the last edition of his *"Key,"* had the godwits all mixed up, believing, as he states, the Hudsonian Godwit (*L. hæmastica*) to be the "strict American representative" of the "European Black-tailed Godwit, *L. limosa*"—and so on. Inasmuch as this was the case, the descriptions of the eggs of godwits by that author would hardly be considered trustworthy.

For *Limosa limosa,* Ridgway says on page 164 of his *"Manual"*: *"Eggs* 2.17 x 1.50, deep grayish olive, indistinctly spotted with deeper olive-brown." This description very neatly fits the four eggs of a perfect set I find in Mr. Court's collection, a representative one of which I photographed, and which is here reproduced in no. 36 of fig. 44. In one of these eggs the spotting is very faint and meagre, a confluent blotching being massed at the butt.

Coming next to the willets, I have before me the eggs of both the Willet (*Catoptrophorus s. semipalmatus*) (fig. 44, nos. 37, 38), and the Western Willet (*C. s. inornatus*) (fig. 44, nos. 34, 35). These birds lay very striking and beautiful eggs, and my figures faithfully portray them in all particulars save *color*. There is scarcely any difference between the eggs of the two species, judging from the sixteen specimens at hand, two sets of four eggs each for either bird. An average one will measure about 2.13 by 1.53, the form of them being well shown in the figures. In ground color they run from a very pale greenish olive or pale buffy to a somewhat darker brownish-olive. For the most part they are speckled, spotted, blotched all over, sometimes being a little heavier at the butts. Some of the specks are exceedingly fine, almost requiring a lens to see them. In color, these markings are of various shades of brown, lilac, and umber, the dark brown spots sometimes overlying the lilac-gray ones. Of these four sets, the palest egg was laid by a Western Willet, and the darkest one by the eastern species (no. 37).

I do not happen to have at hand any eggs of either of our species of yellowlegs (*Totanus*), but I imagine they do not depart so very far from the Redshank (*Totanus calidris*) of Europe (fig. 42, nos. 18, 19), of which species I present the figures of two specimens, chosen from four sets of four eggs each. These show the form and size (1.70 by 1.20, Swann) of these eggs very well, while the color and markings exhibit very considerable variation. The ground color may be of a

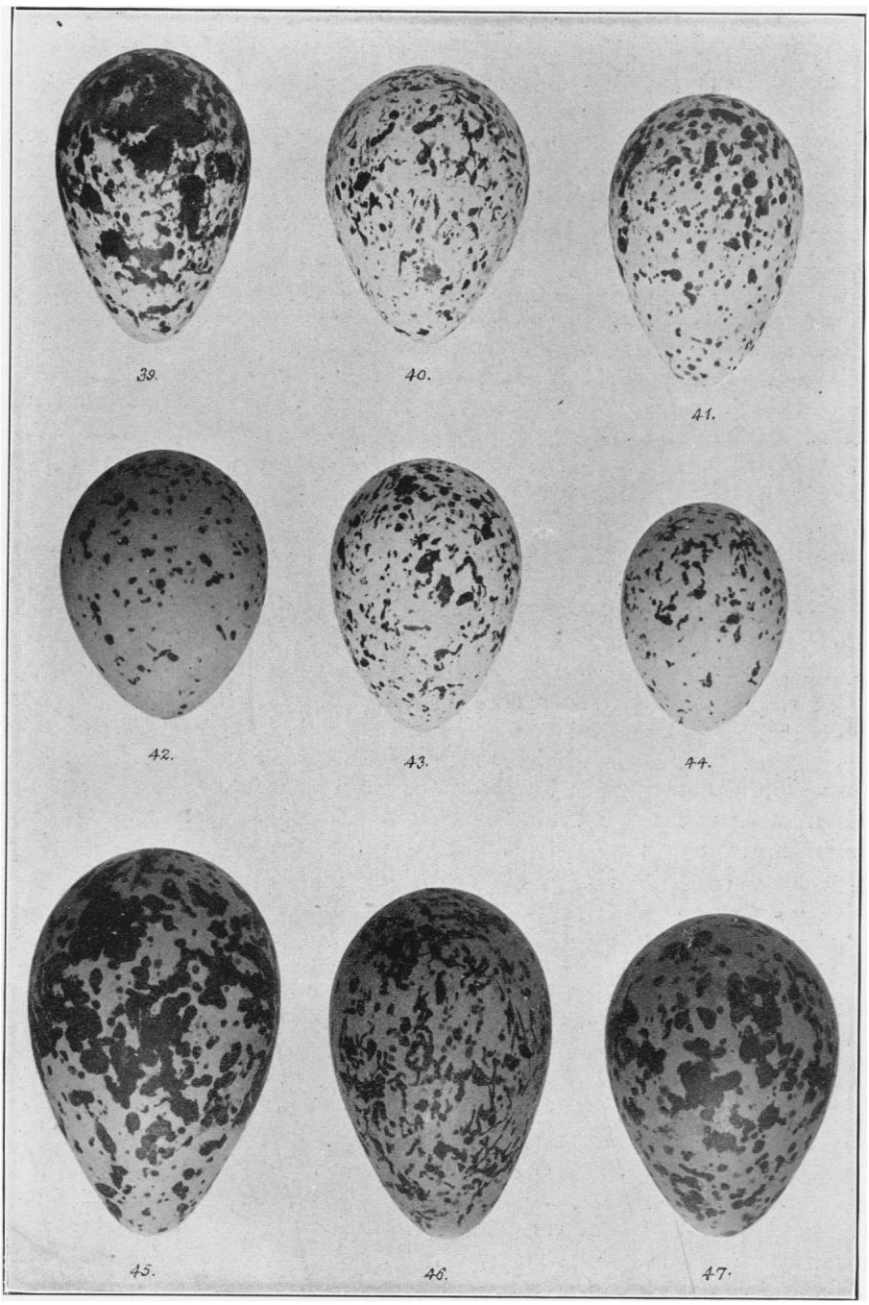

Fig. 45. Nos. 39-41, Killdeer (*Oxyechus vociferus*); from three different sets, of three eggs each. No. 42, Mountain Plover (*Podasocys montanus*); from a set of three. No. 43, Wilson Plover (*Ochthodromus wilsonius*); from a set of three. No. 44, Snowy Plover (*Aegialitis nivosa*); from a set of three. No. 45, Golden Plover (*Charadrius d. dominicus*); from a set of four. Nos. 46 and 47, Black-necked Stilt (*Himantopus mexicanus*); from two different sets, each of four eggs. Slightly less than natural size.

pale greenish-olive, a pale buffy, or a clear, very light, clay color, which last may be darker by being uniformly tinged with light brown. For the most part they are spotted, speckled (often very finely), and blotched all over in the most remarkable way with dark vandyke brown, pale gray, and dull lilac. Sometimes the blotches of brown are nearly black, and become confluent as shown in no. 19.

Ridgway gives descriptions of the eggs of both our species of *Totanus*, but it is very difficult to tell about the appearance and form of birds' eggs unless we present good figures of them, correctly colored if possible.

Of the beautiful set of four eggs of the Ruff (*Machetes pugnax*) in this collection, I present, on fig. 42, three figures of them (nos. 20-22). They are of a rich olive-brown, rather dark, heavily blotched, and speckled nearly all over with dark brown markings of forms shown in the figures. Meagrely interspersed among these, we find some almost imperceptible spots of a pale lilac-gray. Strange to say, Swann does not describe in his *"Hand-book"* the eggs of the Ruff, perhaps for the reason that they are so well known to the collector. Coues, in his *"Key"* (5th ed. p. 837) likewise omitted their description, though possibly for a different reason. For them, according to Ridgway (*loc. cit.* p. 168), we have: *"Eggs* 1.71 by 1.20, light olive or olive-buff, spotted with vandyke brown or bistre," a description that would not correctly describe the set in this collection, though I doubt not it might apply to other specimens of Ruff's eggs. In some, the ground color is really a deep, rich olive, untinged by any brown shade, as was the case with the specimen shown in no. 21, and still more so in an unfigured one of this set.

Few, if any, of our sandpipers ever lay a handsomer egg than is laid by the well-known Spotted Sandpiper (*Actitis macularia*). Two specimens of these are given in nos. 15 and 16 of fig. 41, the exceptionally handsome one being given in no. 15. These eggs, that is, the set of four in which no. 15 belongs, are of a very pale greenish white (almost white), being spotted and blotched all over with blackish brown markings and with a few very faint lilac ones.

Another set of four (see no. 16) has the ground tint a very pale clay color, tinged with olive, the markings consisting of much finer blackish brown spots, flecks, and the minutest dottings imaginable. There are also a few faint, semi-concealed spots of a very pale purplish lilac, which would escape notice unless especially looked for by the observer.

Average examples of the eggs of the Long-billed Curlew (*Numenius americanus*) are reproduced in nos. 28-30 on fig. 43. There are twenty eggs of this species before me, equally divided into five sets. They vary to some extent in form, size, and color, and withal are not particularly handsome eggs, being dull in color, often with weak, undecided markings. Ridgway gives the ground color of the egg of this species as "light grayish buff or pale buffy brown"; while Coues (*"Key"* p. 842) comes nearer the mark when he says they are "clay-colored, tending either to darker olivaceous shades or to buff." All the specimens in this collection are either of a *dark* olivaceous, or a medium shade of that color. The markings are of various tints of brown, never very dark, and a few of a pale lilac. There is generally, but not always, a tendency for the heavier markings to be at the big end. They are both elongate and short pear-shaped (Coues, 2.45-2.80 by 1.80-1.90; Ridgway, 2.59 by 1.80).

The Whimbrel (*N. phæopus*) lays eggs that are about one-third smaller than those of the Long-billed Curlew; the ground color is more of a clayey tint with less olive in it, and the dark brown markings are often massed and confined to

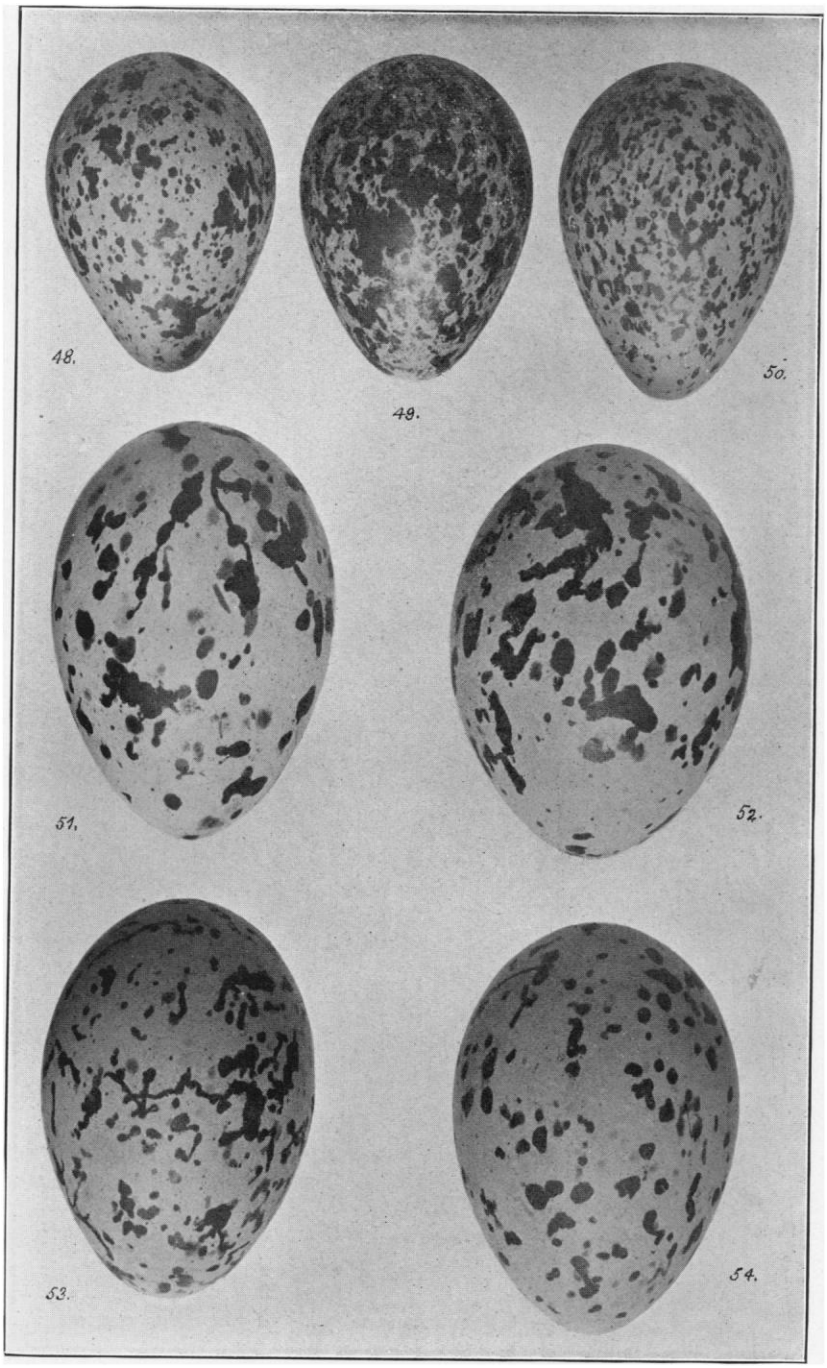

Fig. 46. Nos. 48-50, Lapwing (*Vanellus vanellus*); from three different sets, of four eggs each. No. 51, Black Oyster-catcher (*Hæmatopus bachmani*); from a set of three. No. 52, Oyster-catcher (*Hæmatopus palliatus*); from a set of two. Nos. 53 and 54, European Oyster-catcher (*Hæmatopus ostralegus*); from two different sets, of three eggs each. Slightly less than natural size.

the butt; but in some specimens they are much finer and irregular, at the same time sparsely sprinkled over the egg (no. 27).

There are at hand two sets of eggs of four eggs each of the Whimbrel, and the markings in some of them are very heavy and large as compared with some of the others. Occasionally, we find at the butt of one of these eggs, about a third of the distance from the end, a scraggly line of *black,* as though it had been done with a pen. This point is interesting, as some oölogists have claimed that this marking is of an adventitious nature. It is also found in eggs of *N. americanus,* where a smaller mass of such scratchings may occur. Ridgway gives the size of the Whimbrel's egg as 2.39 by 1.66, and that is almost exactly the size of one in this collection.

Twenty-eight eggs of the Lapwing (*Vanellus vanellus*), or seven sets of four to the set, probably give a fair average for size, form and color of the eggs of this interesting plover, and this is the number of them before me at the present writing (fig. 46, nos. 48-50). It is a very handsome egg that *Vanellus* lays, ranging in ground color from a very deep clay-buff, to a rich buffy olive, finely or very coarsely marked all over with blotches or spots of all possible sizes and shapes of blackish-brown. In size they average 1.75 by 1.30.

A rival of that of the Lapwing is the egg of the Golden Plover (*Charadrius d. dominicus*). Judging from the set of four at hand, it is always larger, more elongate, and much lighter in ground color. The blotches, dots, and specks distributed all over the surface of any one of them are of a blackish-brown, almost black. Sometimes the bigger markings are congregated at the butt, but there is considerable variation in this matter. Average size 2.07 by 1.40 (Ridgway).

Even handsomer than those of either the Lapwing or the Golden Plover are the eggs of the Killdeer Plover (*Oxyechus vociferus*) (fig. 45, nos. 39-41), for they are of the palest possible clay color, and the markings, of a character as shown in the figures, are black, causing them to be most striking oölogical subjects. Size, 1.50 x 1.10.

To represent the eggs of the species composing the genus *Aegialitis,* those of the Snowy Plover (*A. nivosa*) have been chosen (fig. 45, no. 44), and they are very modest-looking little affairs, the collection containing three sets of three eggs to the set, all of which I have duly compared. Whether this is the usual clutch I am, at this writing, unable to state, and Ridgway does not commit himself on this point in his *"Manual,"* while Coues says not a word about the eggs of this species of plover in his *"Key"* (5th ed. pp. 780, 781). They exhibit but very little variation in any particular, all being of a very pale, dull, buff-clay color, finely spotted, nearly all over, though not thickly, with blackish-brown spots and the finest kind of scraggly hair-lines. In some, the dots are coarser, and no hair-lines appear on the specimens, the markings being chiefly congregated at the big end, though not altogether so. No. 44 presents one of these eggs, nearly natural size.

The Wilson Plover (*Ochthodromus wilsonius*) (fig. 45, no. 43) also lays a very pale-colored, buffy tinted egg, more elongate than in the last species, but very similarly marked with blackish-brown irregular spots as shown in the figure. These are pretty evenly distributed all over the egg, and never of very large size.

The eggs, then, shown in nos. 40-44 are the general style and pattern of the smaller species of plovers; but we note a decided difference when we come to examine those of the Mountain Plover (*Podasocys montanus*) (fig. 45, no. 42). This egg is rounder, or rather less pyriform, than is usually the case among these

typical limicoline birds of the plover group. They are darker, being of a clear, olive-drab color, moderately dotted, chiefly over the larger half of the egg, with irregular black spots and fine little specks, lending to the surface a very delicate appearance on account of the elegant shade of the ground color. Size: 1.40-1.50 by 1.10 (Coues). "Varying from light olive to deep cream color, rather sparsely and irregularly speckled and lined with dark brown, black and purplish gray," is Ridgway's description of the eggs of this plover. He rarely states how many there are to the set in the case of any of these smaller pluvialine species; but they probably run from three to four in nearly all the species, if not in all.

All three of the species of oyster-catchers (*Hæmatopus*) are to be found in Mr. Court's collection. They constitute a beautiful series of eggs, and examples of all of them are given on fig. 46 of this paper (nos. 51-54). As will be noted, they do not vary to any great extent; they run from a deep, dull, buffy shade to a creamy buff, with very pronounced, bold markings of big and little dots, blotches, fine specks, often coarse, scraggly lines and other irregular designs. These are pretty evenly distributed all over the eggs, and are very striking, being either dull black, vandyke brown or bistre, often with lighter spots of pale gray. The sets run from two to three, and, I believe, never four.

For our Oyster-catcher (*Hæmatopus palliatus*) Coues ("*Key*," 5th ed., p. 789) gives the measurements as "about 2.20 by 1.55." Those of the European species (*H. ostralegus*) are smaller, and, in the case of the specimens at hand, darker. In a paper I published in the Report of the U. S. National Museum for 1892 (pp. 461-493) entitled "Comparative Oölogy of North American Birds," I said, when commenting on the study of the eggs of the *Limicolæ*, that the study of the oölogy of this group is important, for "perhaps the greatest scientific triumph of oölogists lies in their having fully appreciated the intimate alliance of the *Limicolæ* (the great group of snipes and plovers) with the *Gaviæ* (the gulls, terns, and other birds more distantly connected with them) before it was recognized by any professed taxonomist, L'Herminier, whose researches have been much overlooked, excepted; though to such an one was given the privilege of placing that affinity beyond cavil" (Huxley, P. Z. S., 1867, pp. 426, 456-458; *cf. Ibis*, 1868, p. 92) [3].

The subject has, however, by no means been exhausted, and even our best reference "Keys" and "Manuals" are often derelict in the matter of giving any description at all of the eggs of the birds composing this important and interesting group.

WITH THE BAND-TAILED PIGEON IN SAN DIEGO COUNTY

By LAURENCE M. HUEY

IN THE early summers during the past three years, extended camping trips have been made by the writer through the mountains of San Diego County, California, on which a good many interesting ornithological notes were taken. Among them are some in regard to the Band-tailed Pigeon (*Columba fasciata*), as observed in that region.

On June 21, 1910, while driving slowly up the grade among the trees that

3. Newton. Alfred, Article "Birds", Encyclopaedia Britannica. p. 773.